

REMARKS

The Office Action dated June 22, 2007 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-12 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 13-18 have been added. No new matter has been added. Claims 1-18 are submitted for consideration.

The Office Action indicated that claim 5 is allowable. Applicant thanks the Examiner for indicating the allowability of claim 5. However, based on the arguments presented below, Applicant submits that all of the pending claims are allowable and requests that all of claims 1-18 be allowed.

Claims 1-4 and 6-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,222,820 to Hamami (hereinafter Hamami) in view of U.S. Patent No. 5,138,615 to Lamport (hereinafter Lamport). According to the Office Action, Hamami teaches all of the elements of claims 1-4 and 6-12 except for teaching that a dependent downlink is set to a link doewn state if the critical uplink fails. Therefore, the Office Action combined the teachings of Hamami and Lamport in an effort to yield all of the elements of claims 1-4 and 6-12. The rejection is traversed as being based on references that do not teach or suggest the combination of elements recited in claims 1-4 and 6-12, and newly added claims 13-18.

Claim 1, upon which claims 2-4 depend, recites a method for fast recovery of a host connection in a redundant tree structured local area network. The method includes monitoring the state of a critical up-link and setting a dependent down-link in a link-down state, if the critical up-link is detected to be in the link-down state.

Claim 5, upon which claims 6-8 depend, recites a method for fast recovery of a host connection in a redundant tree structured local area network. The method includes monitoring the state of an active up-link in a host device and starting a recovery process in the host device if the active link is in a link-down state.

Claim 9, upon which claims 10-13 depend, recites an apparatus for fast recovering of a host connection in a redundant tree structured local area network. The apparatus includes a monitoring device configured to monitor the state of a critical up-link, and to set a dependent down-link in a link-down state, if the critical up-link is detected to be in the link-down state.

As noted below, the cited references of Hamami and Lamport do not teach or suggest the combination of elements recited in the pending claims.

Hamami discloses a method of selectively providing redundancy on a dynamic basis to end users that request it. The method establishes both a primary and a redundant connection for each connection requested to be redundant. A unique call reference number generated by the end user is carried unchanged from switch to switch along the path. Each switch along the routing path registers the call as a primary call in its database. Subsequently, once the primary connection is established successfully, the redundant

connection is established. Each switch along the redundant path checks to see if the primary path already includes that switch. If it does, then either the call can be rejected or it can be permitted with the condition that a link is to be used to the next hop that is not in use on the primary path. Once established, the originator of the redundant path continuously monitors the primary connection for failures. If a failure is detected, data traffic is switched from the primary connection to the redundant connection with any loss of cells being handled by the upper communication protocol layers.

Lamport discloses that a mesh connected local area network provides automatic packet switching and routing between host computers coupled to the network. The network has a multiplicity of cut-through, nonblocking switches, each capable of simultaneously routing a multiplicity of data packets. Low host-to-host latency is achieved through the use of cut-through switches with separate internal buffers for each packet being routed. The switches are interconnected with one another and are coupled to the host computers of the network by point to point full duplex links. While each switch can be coupled to ten or more network members, i.e., switches and hosts, each link is coupled to only two network members and is dedicated to carrying signals there between. Whenever a new switch or link is added to the network, and whenever a switch or link fails, the switches in the network automatically reconfigure the network by re-computing the set of legal paths through the network.

Applicant submits that the combination of Hamami and Lamport does not teach or suggest each of the elements of the pending claims. Each of claims 1, 5, 9, 14 and 16-18,

in part, recites monitoring the state of a critical up-link or an active up-link. Hamami does not teach or suggest these features.

The idea of defining some up-links as critical for some down-links in the switches of the network is to be able to quickly report a failure somewhere in the network to the host devices. Thus, the present invention, as recited in the pending claims, defines the links of the network in the switches of the network as critical and dependent. Col. 3, lines 55-57 of Hamami discloses that the OAM F5 end-to-end cells are used to detect the failure of the primary path. This disclosure of Hamami is different from monitoring the state of an individual link, such as a critical up-link, in one path. In the present invention, the monitoring of a link is done in a network element in the middle of the path and also in a host device at the end of the path. Hamami does not disclose which part of the primary path the OAM F5 end-to-end cells are monitoring; therefore, indicating that Hamami is not concerned with critical up-links and/or dependent down-links. Correspondingly, in Col. 9, lines 44-48 of Hamami there is no teaching or suggestion of the host device monitoring only the up-link part of the active connection for implementing a fast recovery process in a local area network, as recited in the pending claims. As noted above, specifying certain up-links as critical for certain (dependent) down-links in the network elements of a redundant tree structured local area network, as recited in the pending claims, enables fast recovery of the network.

Lamport does not cure any of the deficiencies of Hamami, as noted above. Col. 33, lines 51-59 of Lamport does not teach or suggest that a dependent downlink is

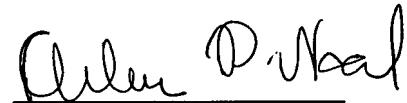
considered to have failed if the uplink connection of a network node fails in a redundant tree structured local area network. Lamport is directed to a mesh structured network in which the switches of the network are connected to the rest of the network by at least two links. The present invention, on the other hand, is directed to a different network topology, a redundant tree structured network. The failure handling technique disclosed by Lamport is built into the mesh network structure which is different from the one discussed in the invention. In a tree structure, uplinks always lead to a higher section in the tree and downlinks to a lower section in the tree. In Lamport both links (an active link and a redundant link) lead to the same node. Therefore, Applicant respectfully asserts that the rejection under 35 U.S.C. §103(a) should be withdrawn because neither Hamami nor Lamport, whether taken singly or combined, teaches or suggests each feature of claims 1, 5, 9, 14 and 16-18 and hence, dependent claims 2-4, 6-8, 10-13 and 15 thereon.

As noted previously, claims 1-18 recite subject matter which is neither disclosed nor suggested in the prior art references cited in the Office Action. It is therefore respectfully requested that all of claims 1-18 be allowed and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,


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Enclosures: Additional Claim Fee Transmittal
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